

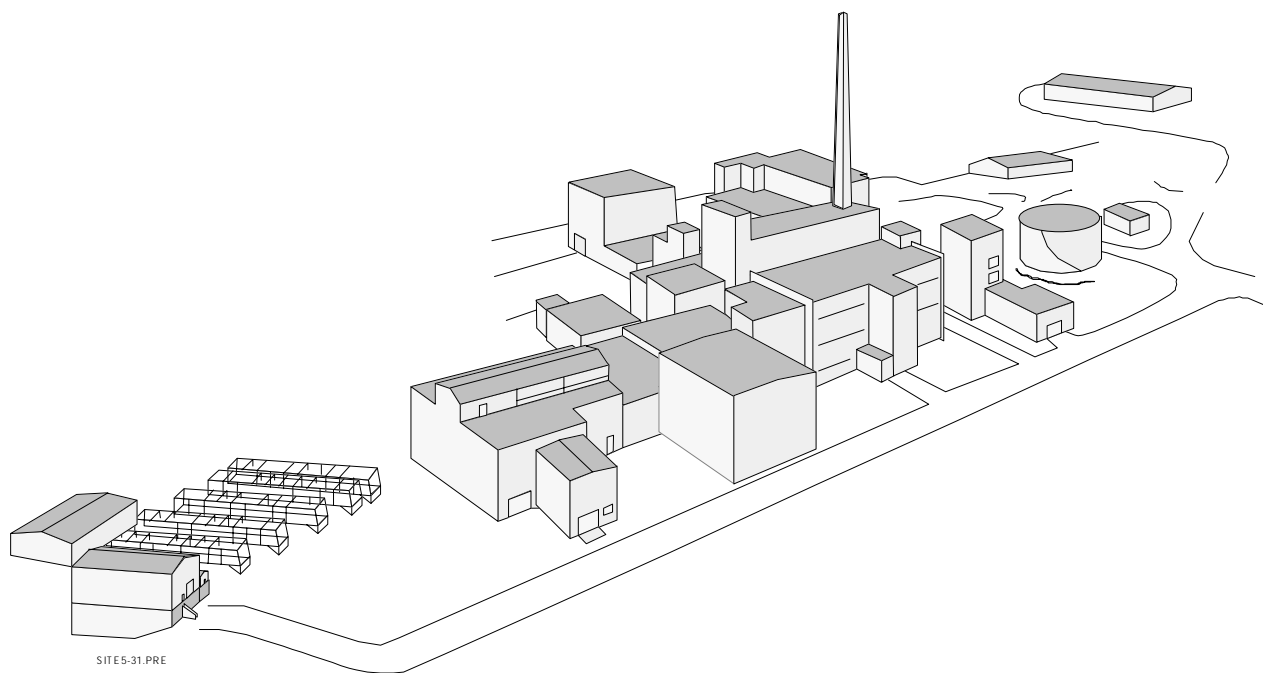
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# WEST VALLEY DEMONSTRATION PROJECT SITE ENVIRONMENTAL REPORT CALENDAR YEAR 1998

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## West Valley Nuclear Services Company and Dames & Moore

Prepared for:  
U.S. Department of Energy  
Ohio Field Office  
West Valley Demonstration Project  
Under Contract DE-AC24-81NE44139

June 1999  
10282 Rock Springs Road  
West Valley, New York 14171-9799

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**Department of Energy**  
Ohio Field Office  
West Valley Demonstration Project  
10282 Rock Springs Road  
West Valley, New York 14171-9799

To The Reader:

This report, prepared by the U.S. Department of Energy West Valley Demonstration Project (OH/WVDP), summarizes the environmental protection program at the West Valley Demonstration Project (WVDP) for calendar year 1998. In the interest of conveying this information as soon as possible, this report has been made available to the public by the end of May 1999, well ahead of the official due date of October 1, 1999.

Monitoring and surveillance of the WVDP facilities used by the DOE are conducted in order to protect public health and safety and the environment. The quality assurance protocols applied to the environmental monitoring program by the DOE ensure the validity and accuracy of the monitoring data. Also included in this report are groundwater and ambient air data from the New York State Energy Research and Development Authority's (NYSERDA) New York State-licensed Disposal Area (SDA).

Air, surface water, groundwater, soil, and biological samples are collected and analyzed for radiological and nonradiological constituents in order to evaluate the potential effects of activities at the WVDP. Calculated doses to the hypothetical maximally exposed off-site individual from air- and waterborne radiological releases in 1998 were less than one percent of the DOE limit. Radionuclide concentrations in biological samples were at levels near to or statistically identical to background concentrations.

Results of nonradiological (chemical) tests of surface water and soil samples showed no effects on the off-site environment. Nonradiological liquid effluent releases are controlled and permitted through the New York State Pollutant Discharge Elimination System (SPDES). Releases in 1998 were below regulatory limits with no exceptions.

In June 1998 the Project completed the first phase of its mission as authorized by the U.S. Congress in 1980. Achieving this objective was a major Project milestone. Monitoring of the vitrification off-gas emissions and the facility ventilation system have verified that the dose received by off-site residents continues to be minimal.

If you have any questions or comments about the information in this report, please contact the West Valley Nuclear Services Company (WVNS) Manager of Public and Employee Communications, John D. Chamberlain, at (716) 942-4610 or fill out the enclosed questionnaire and receive a free pen made of recycled materials.

Sincerely,

*B. A. Mazurowski*

B. A. Mazurowski, Director  
West Valley Demonstration Project

**West Valley Demonstration Project**

**Site Environmental Report**

**for**

**Calendar Year 1998**

*Prepared for the U.S. Department of Energy*

*Ohio Field Office*

*West Valley Demonstration Project Office*

*under contract DE-AC24-81NE44139*

***June 1999***

*West Valley Nuclear Services Co.*

*10282 Rock Springs Road*

*West Valley, New York 14171-9799*

# Preface

*Environmental monitoring at the West Valley Demonstration Project (WVDP) is conducted by the West Valley Nuclear Services Company (WVNS) under contract to the U.S. Department of Energy (DOE). The data collected provide an historical record of radionuclide and radiation levels from natural and manmade sources in the survey area. The data also document the quality of the groundwater on and around the WVDP and the quality of the air and water discharged by the WVDP.*

*This report represents a single, comprehensive source of off-site and on-site environmental monitoring data collected during 1998 by environmental monitoring personnel. The environmental monitoring program and results are discussed in the body of this report. The monitoring data are presented in the appendices. Appendix A contains maps of on-site and off-site sampling locations. Appendix B is a summary of the site environmental monitoring schedule. Appendices C through J contain summaries of data obtained during 1998 and are intended for those readers interested in more detail than is provided in the main body of the report. Appendix K lists the environmental permits and regulations pertaining to the WVDP. Appendix L lists data from the New York State-licensed Disposal Area.*

*Requests for additional copies of the 1998 Site Environmental Report and questions regarding the report should be referred to the Public and Employee Communications Department, 10282 Rock Springs Road, West Valley, New York 14171 (telephone: 716-942-4610). The report also is available electronically at <http://www.wvdp.com> under the Westinghouse/WVNS Site Contractor WVDP History page.*

**SUMMARY OF CHANGES  
TO THE 1998 WVDP SITE ENVIRONMENTAL REPORT  
FROM  
THE 1997 SITE ENVIRONMENTAL REPORT**

This report, prepared by the U.S. Department of Energy (DOE) West Valley Demonstration Project Office, summarizes the environmental protection program at the West Valley Demonstration Project (WVDP) for calendar year 1998. Monitoring and surveillance of the facilities used by the DOE for the WVDP are conducted in order to protect public health and safety and the environment. The quality assurance protocols applied to the environmental monitoring program by the DOE ensure the validity and accuracy of the monitoring data. Also included in this report are groundwater and ambient air data from the New York State Energy Research and Development Authority's (NYSERDA) New York State-licensed Disposal Area (SDA).

To assist readers familiar with past WVDP annual Site Environmental Reports, changes in format and content for the 1998 report have been summarized below.

**FORMAT CHANGES**

- Appendices have been reorganized and relabeled alphabetically.
- Sample location maps have been taken from the text and moved to Appendix A.

**CONTENT REVISIONS AND ADDITIONS**

- The Compliance Summary has been updated to reflect the 1998 regulatory compliance status.
- Implementation of a plan to integrate environmental, safety, and health management procedures at the WVDP, in association with the Integrated Safety Management System (ISMS), is discussed in the Environmental Compliance Summary.
- Data and text have been updated throughout the report to reflect the calendar year (CY) 1998 environmental monitoring program and compliance status. Tables, graphs, and maps have been updated, including sampling locations, analytes, and frequencies. Some photographs and references have been updated.
- Graphs of performance indicators presented in Chapter 1 were updated to include the 1998 performance results.
- Changes to the environmental monitoring program are summarized at the beginning of Appendix B. Note that Appendix B now describes the 1998 Environmental Monitoring Program.
- Chapter 1 describes continued successful operation of the WVDP vitrification facility in 1998. The completion of the Project's production phase (Phase I) in June 1998 was a major milestone. The new low-level waste treatment facility began operations in April 1998.
- Chapter 2 includes a discussion of 1998 radiological results of sampling of air emissions and water effluents from the site as compared to DOE concentration guides. It also compares 1998

results from near-site locations to results from background locations in order to evaluate effects of site activities.

- Chapter 3 was updated to summarize and discuss results of the 1998 groundwater monitoring program, including continued monitoring for strontium-90 in the north plateau, special monitoring for gross beta and tritium at points near the Nuclear Regulatory Commission (NRC)-licensed disposal area (NDA), and issuance of the final report on a study of chromium and nickel in the sand and gravel unit.
- Chapter 4 provides an assessment of dose to the general public resulting from exposure to radiation and radionuclides released by the Project to the surrounding environment in 1998 and briefly discusses completion of the deer drive that moved the on-site herd off the WVDP premises.
- Chapter 5 was updated to include 1998 changes to the WVDP quality assurance program. In 1998 the NRC stopped placing thermoluminescent dosimeters (TLDs) co-located with WVDP TLDs as an independent verification of environmental radiation levels measured through the WVDP environmental monitoring program.
- Tables in the reorganized appendices were relabeled and text references changed. Data in the appendices were updated to reflect results of 1998 measurements.

## **SPECIAL ISSUES**

- WVDP initiatives in response to the 1998 Clean Water Action Plan continued. For the first time since the DOE began operations at the WVDP in 1982 no State Pollutant Discharge Elimination System (SPDES) exceedances were noted.
- No unplanned radiological releases to the off-site environment occurred in 1998.
- Removal of the resident deer herd from inside the security-fenced area was successfully completed and monitored in the spring of 1998.
- A special assessment of environmental monitoring program hardware and software for year-2000 compliance was completed in July 1998.
- In July 1998 the Citizen Task Force issued its final report regarding preferred closure alternatives.
- The site SPDES permit was administratively renewed without changes by the New York State Department of Environmental Conservation (NYSDEC) and was issued to the West Valley Nuclear Services Co. (WVNS) in September 1998. A draft SPDES permit including storm water monitoring, submitted for public comment in June 1997, is still pending.
- The NRC proposed decommissioning criteria for the WVDP in October 1998.

## ERRATA and CORRIGENDA

### West Valley Demonstration Project Site Environmental Report Calendar Year 1997

Strontium-90 calculations: During 1998 a flaw in decay-correction calculations during analysis of strontium-90 by a vendor laboratory was identified. The calculations were subsequently corrected and the affected strontium-90 values were updated. These new values were reviewed to assess any effects on radiological dose assessment values reported in the 1995 and 1996 Site Environmental Reports. The average increase in strontium-90 values was 6% for both 1995 and 1996. The radiological dose assessments for 1995 and 1996 were unaffected, with the exception of an approximate 1% increase in the 1995 estimated dose equivalent to the maximally exposed individual. This 1% increase was attributable to changes in air effluent data; values for strontium-90 in liquid effluents were not affected. All strontium-90 values generated after 1996 were corrected before the 1997 report was issued.

Uranium calculations: A problem with uranium isotope calculations by the same vendor laboratory also was detected in December 1998. The values reported were higher than the true values and affected samples from 1995 through 1998. Most concentrations did not differ by more than 0.5%, causing no change in the dose assessment. Corrections to the calculations for calendar year 1998 have been made and updated values have been entered in the database.

The vendor laboratory's software was surveilled and corrective actions to be taken by April 30, 1999 were identified. These actions have been substantially completed as of the date of publication of this report.

Other:

Page C2-15:	<i>Location</i>	<i>Analyte</i>	<i>1997 Report Read</i>	<i>Should Read</i>
	2nd Quarter	Total U	0.00±0.00E+00	0.00±8.49E-06
Page C5-8:	Outfall 001	Hexavalent Chromium	Chromium IV	Chromium VI

Any questions or comments about the corrigenda noted here may be directed to the Manager of Public and Employee Communications, John D. Chamberlain, West Valley Nuclear Services Company, at (716) 942-4610.